

Microarray Technology

U N I V E R S I T Y O F U T A H

CENTER

The Center for Microarray Technology (CMT), a new Center this year, is developing technology related to real-time microarrays. This technology includes a metallic microarray substrate in which the probe molecules are bound in nanocavities. The cavities serve as detection sites providing improved sensitivity and increased fluorescence yield. Target application areas include discovery and clinical diagnostics. The goals of the Center are to improve the speed and data quality over traditional microarray technologies and methodologies by increasing sensitivity and selectivity, and through the development of sophisticated analysis methods.

TECHNOLOGY

In its first year of Centers of Excellence funding, CMT's technology developments include DNA amplification and detection on a microarray surface, a method for detection of unlabeled molecules on microarrays, the use of nanocavities to improve nucleic acid or peptide synthesis, and the use of localized temperature control on a microarray surface to selectively immobilize nucleic acids.

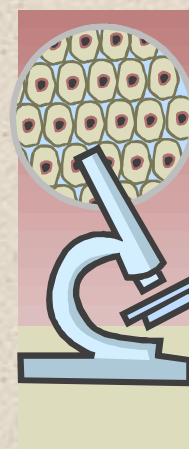
ACCOMPLISHMENTS

In the past year, the Center has received over \$207,000 in external funds, has filed one patent application, and is in the process of creating a spinout, Philotek. The Center has developed a method of rapid prototyping for the fabrication of its nanocavity microarrays. Optimization of the nanocavity shape is ongoing but current geometries more than double the enhancement over preliminary results. In combination with nanocavity design, the related surface chemistry for molecule attachment has been characterized into an industry-standard and adapted to the nanocavity arrays. The Center is discussing a manufacturing partnership with another Centers of Excellence spinout, MOXTEK, to produce the nanocavity substrate.

In addition, new real-time analysis methods of microarrays are being developed to improve data quality and the range of data capture. The Center is also now using the microheater chips that it designed to control the surface temperature on microarrays.

THINK TANK

**What if there was
a way to...**



**Detect molecules
with better
sensitivity on a
microarray in
real-time?**

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